

Characteristics of Insulation & Sheath Materials

Designation			Fire Performance				Mechanical Performance			Halogen Content	Weather				
VDE code	Abbreviations	Materials	Working Temperature °C	Flame Retardance	Oxygen Index	Corrosive Gases in case of Fire	Tensile Strength N/mm ²	Abrasion Resistance	Water Resistance	Halogen-Free	Weather Resistance	Cold Resistance			
Thermoplastic compounds	Y	PVC	Polyvinylchloride compounds	-30 +70	Self-extinguishing	23-42	Hydrogen chloride	10-30	Fair	Good	No	Fair/Good			
	YW	PVC	Heat-resistant 90°C	-20 +90											
	Yw	PVC	Heat-resistant 105°C	-20 +105											
	Yk	PVC	Cold resistant	-40 +70											
	2Y	LDPE	Low density polyethylene	-40 +80	Flammable	≤23	No	10-20	Fair	Excellent	Yes	Good			
	2Y	HDPE	High density polyethylene	-60 +90				20-30	Good						
	2X	XLPE	Cross-linked polyethylene	-35 +90				10-20	Fair						
	02Y		Foamed polyethylene	-40 +70		18-30	5-15	-	-	Conditional	-				
	3Y	PS	Polystrole	-50 +80		≤23	No	50-70	Good	Good	Yes	Fair/Good	Fair/Good		
	4Y	PA	polyamide	-20 +105		≤23	No	50-60	Excellent	Fair		Good			
9Y	PP	Polypropylene	-20 +100	20-40				Fair	Excellent	Fair	Good				
11Y	PUR	Polyurethane	-40 +80	20-26				30-50	Excellent	Fair	Yes	Excellent	Excellent		
Elastomeric compounds	G	NR SBR	Natural rubber Styrol butadiene rubber compounds	-65 +60		Flammable	≤23	No	5-10	Fair	Fair	No	Fair	Excellent	
	2G	SIR	Silicone rubber	-60 +180		High flash point	25-35					Good			
	3G	EPR	Ethylene propylene rubber compounds	-30 +90	Flammable	≤23	Excellent					Excellent	Yes	Excellent	Good
	4G	EVA	Ethylene vinylacetate copolymer compounds	-30 +125			5-15					Good			
	5G	CR	Polychloroprene compounds	-40 +100	Self-extinguishing	30-35	Hydrogen chloride	10-20	Fair	Fair	No	Excellent	Fair/Good		
	6G	CSM	Chlorosulfonated Polyethylene compounds	-30 +80								Fair	Fair		
Fluoropolymer	10Y	PVDF	Polyvinylidene fluoride Kynar/Dyflor	-40 +135	Self-extinguishing	40-45	Hydro-fluoric	50-80	Excellent	Excellent	No	Excellent	Excellent		
	7Y	ETFE	Ethylene Tetrafluorethylene Tefzel	-80 +155	Self-extinguishing	30-35	Yes	40-50	Excellent	Excellent		Excellent	Excellent		
	6Y	FEP	Fluorine ethylene propylene Teflon	-80 +205	Self-extinguishing	>95	Yes	10-30	Excellent	Excellent		Excellent	Excellent		
	5YX	PFA	Perfluoralkoxypolymeric Teflon	-80 +240	Self-extinguishing	>95	Yes	20-30	Excellent	Excellent		Excellent	Excellent		
	5Y	PTFE	Polytetrafluorethylene Teflon	-80 +260	Self-extinguishing	>95	Yes	70-80	Excellent	Excellent		Excellent	Excellent		
Halogen-Free compounds	H	not cross linked	Halogen free polymer compounds	-30 +70	Self-extinguishing	≤40	No	8-15	Fair	Conditional	Yes	Fair/Good	Fair		
	HX	cross linked	Halogen free polymer compounds	-30 +90	Self-extinguishing	≤40	No	8-15	Fair						